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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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MCDERMOTT WILL & EMERY 600 13TH STREET, N.W. WASHINGTON, DC 20005-3096			THOMPSON, JAMES A	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/585,339

Applicant(s)

MIAHIMA ET AL.

Examiner

James A Thompson

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06/02/2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The incorporation of essential material in the specification by reference to a foreign application or patent, or to a publication is improper. Applicant is required to amend the disclosure to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating that the amendatory material consists of the same material incorporated by reference in the referencing application. See *In re Hawkins*, 486 F.2d 569, 179 USPQ 157 (CCPA 1973); *In re Hawkins*, 486 F.2d 579, 179 USPQ 163 (CCPA 1973); and *In re Hawkins*, 486 F.2d 577, 179 USPQ 167 (CCPA 1973).

3. The disclosure is objected to because of the following informalities:

It is replete with spelling and grammatical errors. A few examples include:

On page 3, line 5, "relatively a much amount" should be replaced with "a relatively large amount".

On page 3, line 12, "printing" should be replaced with either "printings" or "print jobs" depending on what is precisely meant.

The sentence of page 3, line 25 to page 4, line 2 needs considerable grammatical correction.

Other spelling and grammatical errors are contained in the specification and the applicant is advised to correct these errors.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Stephenson (US Patent 5,757,388).

Regarding claim 1: Stephenson discloses an image forming apparatus (figure 2 of Stephenson) to which an external device (figure 1 of Stephenson) transmitting image data is to be connected (column 2, lines 40-44 of Stephenson). An electronic camera (figure 1 of Stephenson) is connected to a printer (figure 2 of Stephenson) using a passive (figure 1(22) of Stephenson) and an active socket connection (figure 1(20) and column 2, lines 40-43 of Stephenson). Said image forming apparatus comprises a detecting unit (figure 3(26) of Stephenson) for detecting whether the external device has

been connected to said image forming apparatus (column 2, lines 47-64 of Stephenson). Said active socket connection is connected to the active latch (figure 3(24) of Stephenson) of the printer (column 2, lines 54-58 of Stephenson). The latch driver (figure 3(26) of Stephenson) controls the connection and disconnection of the camera from the printer (column 2, lines 60-64 and column 4, lines 13-16 of Stephenson). Said latch driver is controlled by the printer electronics (figure 3(30) and column 4, lines 13-16 of Stephenson). Therefore, the latch driver (figure 3(26) of Stephenson), under control by aspects of the printer electronics (figure 2(30) of Stephenson), forms what is essentially the detecting unit.

Said image forming device further comprises a printing unit (figure 4 of Stephenson) and a control unit (figure 3(30) of Stephenson) for controlling, when the detecting unit (figure 3(26) of Stephenson) detects that the external device has been connected to the image forming apparatus, said printing unit so as to prepare for image forming according to the image data from the external device (column 3, line 65 to column 4, line 6 of Stephenson). Timing signals transmitted through the active socket (figure 3(20) of Stephenson) and through the active latch (figure 3(24) of Stephenson) are used to synchronize the display modulation and the printer data reception (column 4, lines 1-4 of Stephenson). Said active latch is used to send a signal indicating the start of the transmission (column 4, lines 4-5 of Stephenson). All of these signals and others are controlled and handled by the printer electronics (figure 3(30), column 3, lines 21-28 and column 4, lines 13-21 of Stephenson). Therefore, said printer electronics are used as a control unit.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stephenson (US Patent 5,757,388) in view of Amoni (US Patent 5,884,086).

Regarding claim 2: Stephenson discloses an image forming apparatus (figure 2 of Stephenson). Said image forming apparatus comprises a detecting unit (figure 3(26) of Stephenson) for detecting an external device (column 2, lines 47-64 of Stephenson), the external device transmitting image data (column 4, lines 56-60 of Stephenson). The active socket connection (figure 3(20) of Stephenson) is connected to the active latch (figure 3(24) of Stephenson) of the printer (column 2, lines 54-58 of Stephenson). The latch driver (figure 3(26) of Stephenson) controls the connection and disconnection of the camera from the printer (column 2, lines 60-64 and column 4, lines 13-16 of Stephenson). Said latch driver is controlled by the printer electronics (figure 3(30) and column 4, lines 13-16 of Stephenson). Therefore, the latch driver (figure 3(26) of Stephenson), under control by aspects of the printer electronics (figure 2(30) of Stephenson) forms what is essentially the detecting unit.

Said image forming apparatus further comprises a power supplying unit for supplying power. Said power supplying unit is inherent in the design of the device

since, without power, it is impossible for said image forming apparatus to perform any meaningful operation.

Said image forming apparatus further comprises a printing unit (figure 4 of Stephenson) that is driven by the power from the power supplying unit and forms an image (column 4, lines 61-64 and column 5, lines 1-4 of Stephenson) according to the image data from the external device (column 4, line 66 to column 5, line 7 of Stephenson). It is inherent that said printing unit is driven by power from a power supplying unit, since no meaningful operation would otherwise be possible.

Stephenson discloses that said image forming apparatus further comprises printer electronics (figure 3(30) of Stephenson), which are used to control various aspects of the device operation (column 4, lines 13-21 of Stephenson). The printer electronics therefore provide the function of a control unit. Stephenson does not disclose expressly that said control unit controls the power supplying by the power supplying unit according to a detection result from the detecting unit (figure 3(26) of Stephenson).

Amoni discloses a connector (figure 7 of Amoni). The power requirements of a connected external device are transmitted (column 2, lines 40-44 of Amoni), which allows the control unit to provide the required power, thus connecting the external device (column 2, lines 32-39 of Amoni). Stephenson and Amoni are combinable because they are from the same field of endeavor, namely the transmission of electronic data between electronic devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use an enhanced USB connector

(figure 7 and column 2, lines 36-39 of Amoni) for the transmission of both data and power between the external device (figure 1 of Stephenson) and the image forming device (figure 2 of Stephenson). Said enhanced USB connector would then be attached to the detecting unit (figure 3(26) of Stephenson) for detecting whether or not said external device is attached to said image forming apparatus. The motivation for doing so would have been to provide both power and data transmission in an efficient manner that does not require separate electrical power connections for each device (column 1, lines 31-36 and column 2, lines 32-39 of Amoni). Therefore, it would have been obvious to combine Amoni with Stephenson to obtain the invention as specified in claim 2.

Regarding claim 3: Stephenson discloses that the image forming apparatus (figure 2 of Stephenson) further comprises a connecting unit (figure 2(24a) of Stephenson) for connecting the external device to said image forming apparatus (column 2, lines 54-58 of Stephenson), wherein the detecting unit (figure 3(26) of Stephenson) detects whether the external device has been connected to said connecting unit (column 2, lines 60-64 of Stephenson). The matching detail (figure 2(24a) of Stephenson) is designed to be inserted into the connector of said external device, allowing said external device to be attached to the image forming apparatus (figure 2 of Stephenson) by said matching unit being connected to said connector. Therefore, the matching detail in the external device forms what is essentially the connecting unit.

8. Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stephenson (US Patent 5,757,388) in view of Amoni (US Patent 5,884,086) and Yokoyama (US Patent 5,694,226).

Regarding claim 4: Stephenson discloses that the printing unit (figure 4 of Stephenson) includes an image forming unit (figure 2(12) and column 3, lines 33-36 of Stephenson) for forming the image on a sheet (column 2, line 65 to column 3, line 10 of Stephenson) according to the image data (column 3, lines 21-25 of Stephenson).

Stephenson in view of Amoni does not disclose expressly that said printing unit includes a fixing unit for fixing the image on the sheet by applying heat. Yokoyama discloses a printer (figure 1 of Yokoyama), which includes a fixing unit (figure 1(7) of Yokoyama) for fixing the image on the sheet by applying heat (column 6, lines 3-4 of Yokoyama).

Stephenson in view of Amoni is combinable with Yokoyama because they are from the same field of endeavor, namely the control of peripherally connected electronic devices, such as printers and digital cameras. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a printer that fixes the image on the sheet by applying heat. The motivation for doing so would have been that said printer is a conventional electro-photographic system for printing images based on input image data (column 1, lines 13-19 and lines 24-29 of Yokoyama). Therefore, it would have been obvious to combine Yokoyama with Stephenson in view of Amoni to obtain the invention as specified in claim 4.

Regarding claim 5: Stephenson discloses that the image forming apparatus (figure 2 of Stephenson) comprises a detecting unit (figure 3(26) of Stephenson) for detecting an external device (column 2, lines 47-64 of Stephenson), said external device transmitting image data (column 4, lines 56-60 of Stephenson). The active socket connection (figure 3(20) of Stephenson) is connected to the active latch (figure 3(24) of Stephenson) of the printer (column 2, lines 54-58 of Stephenson). The latch driver (figure 3(26) of Stephenson) controls the connection and disconnection of the camera from the printer (column 2, lines 60-64 and column 4, lines 13-16 of Stephenson). Said latch driver is controlled by the printer electronics (figure 3(30) and column 4, lines 13-16 of Stephenson). Therefore, the latch driver (figure 3(26) of Stephenson), under control by aspects of the printer electronics (figure 2(30) of Stephenson) forms what is essentially the detecting unit.

Stephenson discloses that said image forming apparatus further comprises printer electronics (figure 3(30) of Stephenson), which are used to control various aspects of the device operation (column 4, lines 13-21 of Stephenson). The printer electronics therefore provide the function of a control unit.

Stephenson in view of Amoni does not disclose expressly that said control unit controls an amount of the power supplied to the fixing unit so as to change the power amount according to the detection result from said detecting unit. Yokoyama discloses a control unit (figure 1(9,12,13) of Yokoyama) that controls the amount of power supplied to the fixing unit (figure 1(7) and column 3, lines 7-18 and lines 28-32 of Yokoyama). The heater control unit (figure 1(9) of Yokoyama), the heater-on managing

unit (figure 1(12) of Yokoyama) and the heater-off managing unit (figure 1(13) of Yokoyama) comprises a control unit that controls said fixing unit since all three units act as a single unit for the purpose of controlling the temperature of the heater (figure 1(7) of Yokoyama). The amount of power supplied to said fixing unit is changed based upon receipt of an image signal (column 3, lines 26-37 of Yokoyama), which would come from an external device (figure 1 of Stephenson), such as a camera. Said fixing unit is kept on if image signals are received repeatedly (column 3, lines 38-43 of Yokoyama). Said heater-off and heater-on managing units are enabled based upon a signal relating to the time (column 2, lines 61-65 and column 3, lines 19-25 of Yokoyama).

Stephenson in view of Amoni is combinable with Yokoyama because they are from the same field of endeavor, namely the control of peripherally connected electronic devices, such as printers and digital cameras. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to control the level of power sent to the fixing unit by using the control unit. Said control unit would control the heater-on and heater-off managing units by using a detection signal from the detecting unit, as taught in Stephenson, instead of a signal indicating time, as taught in Yokoyama. Yokoyama teaches that the purpose for using the time signal is so that the image forming device will be on at a pre-heat temperature or off at room temperature (column 1, lines 50-59 of Yokoyama), depending upon the time the image forming device is most likely to be in use (column 2, lines 61-65; column 3, lines 19-25; and column 1, lines 24-26 of Yokoyama). The most likely time for image forming to occur in the image forming apparatus (figure 2 of Stephenson) taught by Stephenson is when

the external device (figure 1 of Stephenson) is attached to the image forming apparatus. Therefore, it would have been obvious to use the detection signal from said detecting unit rather than the time signals. The motivation for doing so would have been to conserve the power consumed by the printer (column 1, lines 20-24 of Yokoyama) by turning on the power to the fixing unit only when the external device is connected (column 2, lines 40-44 of Amoni). Therefore, it would have been obvious to combine Yokoyama with Stephenson in view of Amoni to obtain the invention as specified in claim 5.

Regarding claim 6: Stephenson discloses that the image forming apparatus (figure 2 of Stephenson) comprises a detecting unit (figure 3(26) of Stephenson) for detecting an external device (column 2, lines 47-64 of Stephenson), the external device transmitting image data (column 4, lines 56-60 of Stephenson). The active socket connection (figure 3(20) of Stephenson) is connected to the active latch (figure 3(24) of Stephenson) of the printer (column 2, lines 54-58 of Stephenson). The latch driver (figure 3(26) of Stephenson) controls the connection and disconnection of the camera from the printer (column 2, lines 60-64 and column 4, lines 13-16 of Stephenson). Said latch driver is controlled by the printer electronics (figure 3(30) and column 4, lines 13-16 of Stephenson). Therefore, the latch driver (figure 3(26) of Stephenson), under control by aspects of the printer electronics (figure 2(30) of Stephenson) forms what is essentially the detecting unit.

Stephenson discloses that said image forming apparatus further comprises printer electronics (figure 3(30) of Stephenson), which are used to control various

aspects of the device operation (column 4, lines 13-21 of Stephenson). The printer electronics therefore provide the function of a control unit.

Stephenson in view of Amoni does not disclose expressly that the control unit controls an amount of the power supplied to the fixing unit so as to keep the fixing unit at a first temperature that is lower than a second temperature for fixing the image on the sheet when the external device has not been detected, and at the second temperature when the external device has been detected.

Yokoyama discloses a control unit (figure 1(9,12,13) of Yokoyama) that controls the amount of power supplied to the fixing unit (figure 1(7) and column 3, lines 7-18 and lines 28-32 of Yokoyama). The heater control unit (figure 1(9) of Yokoyama), the heater-on managing unit (figure 1(12) of Yokoyama) and the heater-off managing unit (figure 1(13) of Yokoyama) comprises a control unit that controls said fixing unit since all three units act as a single unit for the purpose of controlling the temperature of the heater (figure 1(7) of Yokoyama). The amount of power supplied to said fixing unit is changed based upon receipt of an image signal (column 3, lines 26-37 of Yokoyama), which would come from an external device (figure 1 of Stephenson), such as a camera. Said fixing unit is kept on if image signals are received repeatedly (column 3, lines 38-43 of Yokoyama). Said heater-off and heater-on managing units are enabled based upon a signal relating to the time (column 2, lines 61-65 and column 3, lines 19-25 of Yokoyama). If the time signal enables said heater-off managing unit, then the power to said fixing unit is turned off, thus keeping said fixing unit at a lower temperature (column 3, lines 19-25 of Yokoyama), unless image data is received for printing (column 3, lines

26-32 of Yokoyama). If the time signal enables said heater-on managing unit, then said fixing unit is maintained at a pre-heat temperature until image data is received (column 3, lines 1-9 of Yokoyama). When image data is received, said fixing unit is maintained at the temperature needed to output the image (column 3, lines 9-14 of Yokoyama).

Stephenson in view of Amoni is combinable with Yokoyama because they are from the same field of endeavor, namely the control of peripherally connected electronic devices, such as printers and digital cameras. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to control the level of power sent to the fixing unit by using a control unit. Said control unit would control the heater-on and heater-off managing units by a detection signal from the detecting unit, as taught in Stephenson, instead of a signal indicating time, as taught in Yokoyama. Yokoyama teaches that the purpose for using the time signal is so that the image forming device will be on at a pre-heat temperature or off at room temperature (column 1, lines 50-59 of Yokoyama), depending upon the time the image forming device is most likely to be in use (column 2, lines 61-65; column 3, lines 19-25; and column 1, lines 24-26 of Yokoyama). The most likely time for image forming to occur in image forming apparatus taught by Stephenson is when the external device (figure 1 of Stephenson) is attached to the image forming apparatus (figure 2 of Stephenson). Therefore, it would have been obvious to use the detection signal from said detecting unit rather than the time signals. The control unit would turn on the heater-on managing unit when the signal indicates that said external device is connected and turn on the heater-off managing unit when the signal indicates said external device is not connected. The

motivation for doing so would have been to conserve the power consumed by the printer (column 1, lines 20-24 of Yokoyama) by adjusting the power to the fixing unit only when the external device is connected (column 2, lines 40-44 of Amoni).

Therefore, it would have been obvious to combine Yokoyama with Stephenson in view of Amoni to obtain the invention as specified in claim 6.

Regarding claim 7: Stephenson discloses that the image forming apparatus (figure 2 of Stephenson) comprises a detecting unit (figure 3(26) of Stephenson) for detecting an external device (column 2, lines 47-64 of Stephenson), the external device transmitting image data (column 4, lines 56-60 of Stephenson). The active socket connection (figure 3(20) of Stephenson) is connected to the active latch (figure 3(24) of Stephenson) of the printer (column 2, lines 54-58 of Stephenson). The latch driver (figure 3(26) of Stephenson) controls the connection and disconnection of the camera from the printer (column 2, lines 60-64 and column 4, lines 13-16 of Stephenson). Said latch driver is controlled by the printer electronics (figure 3(30) and column 4, lines 13-16 of Stephenson). Therefore, the latch driver (figure 3(26) of Stephenson), under control by aspects of the printer electronics (figure 2(30) of Stephenson) forms what is essentially the detecting unit.

Stephenson discloses that said image forming apparatus further comprises printer electronics (figure 3(30) of Stephenson), which are used to control various aspects of the device operation (column 4, lines 13-21 of Stephenson). The printer electronics therefore provide the function of a control unit.

Stephenson discloses that said image forming apparatus further comprises a printing unit (figure 4 of Stephenson) that output a print of the image data (column 4, line 61 to column 5, line 4 of Stephenson).

Stephenson in view of Amoni does not disclose expressly the control unit controls the power supplying to the printing unit when the detecting unit has detected the external device. Yokoyama discloses a control unit (figure 1(9,12,13) of Yokoyama) that controls the amount of power supplied to the fixing unit (figure 1(7) and column 3, lines 7-18 and lines 28-32 of Yokoyama), which is a key component of the overall printing unit (figure 1(8) and column 1, lines 46-50 of Yokoyama). The heater control unit (figure 1(9) of Yokoyama), the heater-on managing unit (figure 1(12) of Yokoyama) and the heater-off managing unit (figure 1(13) of Yokoyama) comprises a control unit that controls said fixing unit since all three units act as a single unit for the purpose of controlling the temperature of the heater (figure 1(7) of Yokoyama). The amount of power supplied to said printing unit is changed based upon receipt of an image signal (column 3, lines 26-37 of Yokoyama), which would come from an external device (figure 1 of Stephenson), such as a camera. Said fixing unit of said printing unit is kept on if image signals are received repeatedly (column 3, lines 38-43 of Yokoyama). Said heater-off and heater-on managing units are enabled based upon a signal relating to the time (column 2, lines 61-65 and column 3, lines 19-25 of Yokoyama). If the time signal enables said heater-off managing unit, then the power to said fixing unit of said printing unit is turned off (column 3, lines 19-25 of Yokoyama), unless image data is received for printing (column 3, lines 26-32 of Yokoyama). If the time signal enables said heater-on

managing unit, then power is provided to said printing unit so that said fixing unit is maintained at a pre-heat temperature until image data is received (column 3, lines 1-9 of Yokoyama). When image data is received, power is provided to said printing unit so that said fixing unit is maintained at the temperature needed to output the image (column 3, lines 9-14 of Yokoyama).

Stephenson in view of Amoni is combinable with Yokoyama because they are from the same field of endeavor, namely the control of peripherally connected electronic devices, such as printers and digital cameras. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to control the level of power sent to the printing unit by using a control unit. Said control unit would control the heater-on and heater-off managing units by a detection signal from the detecting unit, as taught in Stephenson, instead of a signal indicating time, as taught in Yokoyama. Yokoyama teaches that the purpose for using the time signal is so that the image forming device will be on at a pre-heat temperature or off at room temperature (column 1, lines 50-59 of Yokoyama), depending upon the time the image forming device is most likely to be in use (column 2, lines 61-65; column 3, lines 19-25; and column 1, lines 24-26 of Yokoyama). The most likely time for image forming to occur in image forming apparatus taught by Stephenson is when the external device (figure 1 of Stephenson) is attached to the image forming apparatus (figure 2 of Stephenson). Therefore, it would have been obvious to use the detection signal from said detecting unit rather than the time signals. The control unit would turn on the heater-on managing unit when the signal indicates that said external device is connected and turn on the heater-off

managing unit when the signal indicates said external device is not connected. The motivation for doing so would have been to conserve the power consumed by the printer (column 1, lines 20-24 of Yokoyama) by adjusting the power to the printing unit only when the external device is connected (column 2, lines 40-44 of Amoni).

Therefore, it would have been obvious to combine Yokoyama with Stephenson in view of Amoni to obtain the invention as specified in claim 7.

9. Claims 8-9 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stephenson (US Patent 5,757,388) in view of Yokoyama (US Patent 5,694,226).

Regarding claim 8: Stephenson discloses an image forming apparatus (figure 2 of Stephenson) to which an external device (figure 1 of Stephenson) transmitting image data is to be connected (column 2, lines 40-44 of Stephenson). An electronic camera (figure 1 of Stephenson) is connected to a printer using a passive (figure 1(22) of Stephenson) and an active socket connection (figure 1(20) and column 2, lines 40-43 of Stephenson).

Said image forming apparatus comprises a connector (figure 2(20) of Stephenson) for connecting said external device to the image forming apparatus (column 2, lines 54-60 of Stephenson).

Said image forming apparatus comprises a detecting unit (figure 3(26) of Stephenson) for detecting whether said external device has been connected to the connector (column 2, lines 47-64 of Stephenson). Said active socket connection (figure 3(20) of Stephenson) is connected to the active latch (figure 3(24) of Stephenson) of the

printer (column 2, lines 54-58 of Stephenson). The latch driver (figure 3(26) of Stephenson) controls the connection and disconnection of the camera from the printer (column 2, lines 60-64 and column 4, lines 13-16 of Stephenson). Said latch driver is controlled by the printer electronics (figure 3(30) and column 4, lines 13-16 of Stephenson). Therefore, the latch driver (figure 3(26) of Stephenson), under control by aspects of the printer electronics (figure 2(30) of Stephenson) forms what is essentially the detecting unit.

Said image forming apparatus further comprises an image forming unit (figure 2(12) of Stephenson) for forming an image on a sheet (column 2, line 65 to column 3, line 10 of Stephenson) according to the image data that has been transmitted from the external device (column 3, lines 21-25 of Stephenson).

Stephenson does not disclose expressly that said image forming device further comprises a fixing unit for fixing the image on the sheet by applying heat, wherein the fixing unit is an electric heater; and a control unit for controlling power supplying to the fixing unit according to a detection result from the detecting unit.

Yokoyama discloses a printer (figure 1 of Yokoyama), which includes a fixing unit (figure 1(7) of Yokoyama) for fixing the image on the sheet by applying heat (column 6, lines 3-4 of Yokoyama).

Yokoyama further discloses a control unit (figure 1(9,12,13) of Yokoyama) that controls the amount of power supplied to the fixing unit (figure 1(7) and column 3, lines 7-18 and lines 28-32 of Yokoyama). The heater control unit (figure 1(9) of Yokoyama), the heater-on managing unit (figure 1(12) of Yokoyama) and the heater-off managing

unit (figure 1(13) of Yokoyama) comprises a control unit that controls said fixing unit since all three units act as a single unit for the purpose of controlling the temperature of the heater (figure 1(7) of Yokoyama). The amount of power supplied to said fixing unit is changed based upon receipt of an image signal (column 3, lines 26-37 of Yokoyama), which would come from an external device (figure 1 of Stephenson), such as a camera. Said fixing unit is kept on if image signals are received repeatedly (column 3, lines 38-43 of Yokoyama). Said heater-off and heater-on managing units are enabled based upon a signal relating to the time (column 2, lines 61-65 and column 3, lines 19-25 of Yokoyama). If the time signal enables said heater-off managing unit, then the power to said fixing unit is turned off, thus keeping said fixing unit at a lower temperature (column 3, lines 19-25 of Yokoyama), unless image data is received for printing (column 3, lines 26-32 of Yokoyama). If the time signal enables said heater-on managing unit, then said fixing unit is maintained at a pre-heat temperature until image data is received (column 3, lines 1-9 of Yokoyama). When image data is received, said fixing unit is maintained at the temperature needed to output the image (column 3, lines 9-14 of Yokoyama).

Stephenson and Yokoyama are combinable because they are from the same field of endeavor, namely printer and image forming control. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a printer that fixes the image on the sheet by applying heat. The motivation for doing so would have been that said printer is a conventional electro-photographic system for printing images based on input image data (column 1, lines 13-19 and lines 24-29 of Yokoyama). It would also have been obvious to a person of ordinary skill in the art at

the time of the invention to control the level of power sent to said printing unit by using a control unit. Said control unit would control the heater-on and heater-off managing units by a detection signal from the detecting unit, as taught by Stephenson, instead of a signal indicating time, as taught by Yokoyama. Yokoyama teaches that the purpose for using the time signal is so that the image forming device will be on at a pre-heat temperature or off at room temperature (column 1, lines 50-59 of Yokoyama), depending upon the time the image forming device is most likely to be in use (column 2, lines 61-65; column 3, lines 19-25; and column 1, lines 24-26 of Yokoyama). The most likely time for image forming to occur in image forming apparatus taught by Stephenson is when the external device (figure 1 of Stephenson) is attached to the image forming apparatus (figure 2 of Stephenson). Therefore, it would have been obvious to use the detection signal from said detecting unit rather than the time signals. The control unit would turn on the heater-on managing unit when the signal indicates that said external device is connected and turn on the heater-off managing unit when the signal indicates said external device is not connected. The motivation for doing so would have been to conserve the power consumed by the printer (column 1, lines 20-24 of Yokoyama) by adjusting the power to the printing unit only when the external device is connected (column 2, lines 40-44 of Amoni). Therefore, it would have been obvious to combine Yokoyama with Stephenson to obtain the invention as specified in claim 8.

Regarding claim 9: Stephenson discloses that the external device (figure 1 of Stephenson) is a camera for taking a picture (column 2, lines 28-30 of Stephenson) and generating the image data (column 2, lines 32-37 of Stephenson), said external device

including a connecting unit (figure 2(24a) of Stephenson) that is to be connected to the connector (figure 1(20) and column 2, lines 56-58 of Stephenson). The matching detail (figure 2(24a) of Stephenson) is designed to be inserted into the connector of said external device, allowing said external device to be attached to the image forming apparatus (figure 2 of Stephenson) by said matching unit being connected to said connector. Therefore, the matching detail in the external device forms what is essentially the connecting unit.

Regarding claim 11: Stephenson discloses an image forming apparatus (figure 2 of Stephenson) to which an external device (figure 1 of Stephenson) is to be connected (column 2, lines 40-44 of Stephenson), said image forming apparatus comprising a connector (figure 2(20) of Stephenson) for connecting said external device to said image forming apparatus (column 2, lines 54-60 of Stephenson).

Said image forming apparatus further comprises an external device detecting unit (figure 2(26) of Stephenson) for detecting whether said external device has been connected to said image forming apparatus via said connector (column 2, lines 47-64 of Stephenson). Said active socket connection is connected to the active latch (figure 3(24) of Stephenson) of the printer (column 2, lines 54-58 of Stephenson). The latch driver (figure 3(26) of Stephenson) controls the connection and disconnection of the camera from the printer (column 2, lines 60-64 and column 4, lines 13-16 of Stephenson). Said latch driver is controlled by the printer electronics (figure 3(30) and column 4, lines 13-16 of Stephenson). Therefore, the latch driver (figure 3(26) of

Stephenson), under control by aspects of the printer electronics (figure 2(30) of Stephenson) forms what is essentially the detecting unit.

Stephenson does not disclose expressly that said image forming apparatus further comprises a fixing unit for fixing an image that has been formed on a sheet by applying heat; a switching unit for putting the fixing unit into a fixing mode, in which the fixing unit is kept at a first temperature for fixing the image on the sheet, and a standby mode, in which the fixing unit stands by and a temperature of the fixing unit is lower than the first temperature; and a control unit for controlling the switching unit so as to switch the fixing unit from the standby mode to the fixing mode when the external device detecting unit detects that the external device has been connected to the image forming apparatus.

Yokoyama discloses a printer (figure 1 of Yokoyama), which includes a fixing unit (figure 1(7) of Yokoyama) for fixing the image on the sheet by applying heat (column 6, lines 3-4 of Yokoyama).

Yokoyama further discloses a switching unit (figure 1(9) of Yokoyama) that puts said fixing unit into a fixing mode, in which said fixing unit is kept at a first temperature for fixing the image on the sheet (column 3, lines 9-14 and lines 26-32 of Yokoyama), and a standby mode, in which the fixing unit stands by and a temperature of the fixing unit is lower than the first temperature (column 3, lines 7-9 and lines 19-25 of Yokoyama). If image data is received, then the fixing unit is provided power so that it can sustain a temperature suitable for fixing the image on the image recording medium (column 3, lines 9-12 and lines 26-32 of Yokoyama). If image data is not received, then

a lower temperature is achieved for said fixing unit. Said fixing unit is either maintained at a preheat temperature level while the image forming device waits for image data (column 3, lines 7-9 of Yokoyama), or said fixing unit attains room temperature while the image forming device waits for image data (column 3, lines 19-25 of Yokoyama). The particular standby mode depends on whether the heater-on managing unit (figure 1(12) of Yokoyama) portion of the control unit (figure 1(12,13) of Yokoyama) or the heater-off managing unit (figure 1(13) of Yokoyama) portion of the control unit is functioning.

Yokoyama further discloses a control unit (figure 1(12,13) of Yokoyama) for controlling said switching unit so as to switch said fixing unit from the standby mode to the fixing mode when an image signal is detected (column 3, lines 7-12 and lines 22-32 of Yokoyama).

Stephenson and Yokoyama are combinable because they are from the same field of endeavor, namely printer and image forming control. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a printer that fixes the image on the sheet by applying heat. The motivation for doing so would have been that said printer is a conventional electro-photographic system for printing images based on input image data (column 1, lines 13-19 and lines 24-29 of Yokoyama). It would also have been obvious to a person of ordinary skill in the art at the time of the invention to control the level of power sent to the fixing unit by using a switching unit to switch between standby and fixing mode. Furthermore, a control unit would be needed control said switching unit by using a detection signal from the detecting unit, as taught by Stephenson, instead of a signal indicating time, as taught by

Yokoyama. Yokoyama teaches that the purpose for using the time signal is so that the image forming device will be on at a pre-heat temperature or off at room temperature (column 1, lines 50-59 of Yokoyama), depending upon the time the image forming device is most likely to be in use (column 2, lines 61-65; column 3, lines 19-25; and column 1, lines 24-26 of Yokoyama). The most likely time for image forming to occur in image forming apparatus taught by Stephenson is when the external device (figure 1 of Stephenson) is attached to the image forming apparatus (figure 2 of Stephenson). Therefore, it would have been obvious to use the detection signal from said detecting unit rather than the time signals. The control unit would turn on the heater-on managing unit portion of said control unit when the signal indicates that said external device is connected and turn on the heater-off managing unit portion of said control unit when the signal indicates said external device is not connected. The motivation for doing so would have been to conserve the power consumed by the printer (column 1, lines 20-24 of Yokoyama) by adjusting the power to the fixing unit so that the heater-on managing unit portion is activated only when the external device is connected. Therefore, it would have been obvious to combine Yokoyama with Stephenson to obtain the invention as specified in claim 11.

Regarding claim 12: Stephenson discloses an image forming apparatus (figure 2 of Stephenson) to which an external device (figure 1 of Stephenson) is to be connected (column 2, lines 40-44 of Stephenson), said image forming apparatus comprising a connector (figure 2(20) of Stephenson) for connecting said external device to said image forming apparatus (column 2, lines 54-60 of Stephenson).

Stephenson does not disclose expressly that the switching unit interrupts a current to the fixing unit in the standby mode.

Yokoyama discloses that the switching unit (figure 1(9) of Yokoyama) switches between standby (column 3, lines 7-9 of Yokoyama) and image fixing mode (column 3, lines 9-14 of Yokoyama). Switching between the two modes requires the interruption of the current to the fixing unit (figure 1(7) and column 3, lines 15-18 of Yokoyama). After the image signal has been processed by the image forming apparatus, said switching unit returns to standby. The electrical power supply is interrupted since it is either lowered in order to keep the temperature of said fixing unit lower (column 3, lines 15-18 of Yokoyama), or said fixing unit is shut off completely (column 3, lines 28-35 of Yokoyama).

Stephenson and Yokoyama are combinable because they are from the same field of endeavor, namely printer and image forming control. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to control the transition of the fixing unit between standby and fixing modes by interrupting the current. Interrupting said current means that the electrical power supply is also interrupted. The motivation for doing so would have been to effectively control the temperature of the heating so that images can be processed when the image signal is received, even if the fixing unit is in standby mode (column 2, lines 52-56 of Yokoyama). Therefore, it would have been obvious to combine Yokoyama with Stephenson to obtain the invention as specified in claim 12.

Regarding claim 13: Stephenson discloses an image forming apparatus (figure 2 of Stephenson) to which an external device (figure 1 of Stephenson) is to be connected (column 2, lines 40-44 of Stephenson), said image forming apparatus comprising a connector (figure 2(20) of Stephenson) for connecting said external device to said image forming apparatus (column 2, lines 54-60 of Stephenson).

Stephenson does not disclose expressly that the switching unit keeps the fixing unit at a second temperature, which is lower than the first temperature, in the standby mode.

Yokoyama discloses that the switching unit (figure 1(9) of Yokoyama) keeps the fixing unit (figure 1(7) of Yokoyama) at a second temperature, which is lower than the first temperature, in a standby mode (column 3, lines 7-14 and lines 19-32 of Yokoyama). If image data is received, then the fixing unit is provided power so that it can sustain a temperature suitable for fixing the image on the image recording medium (column 3, lines 9-12 and lines 26-32 of Yokoyama). If image data is not received, then a lower temperature is achieved for said fixing unit. Said fixing unit is either maintained at a preheat temperature level while the image forming device waits for image data (column 3, lines 7-9 of Yokoyama), or said fixing unit attains room temperature while the image forming device waits for image data (column 3, lines 19-25 of Yokoyama). The particular standby mode depends on whether the heater-on managing unit (figure 1(12) of Yokoyama) portion of the control unit (figure 1(12,13) of Yokoyama) or the heater-off managing unit (figure 1(13) of Yokoyama) portion of the control unit is functioning.

Stephenson and Yokoyama are combinable because they are from the same field of endeavor, namely printer and image forming control. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to switch between standby and fixing mode by interrupting the current. The suggestion for doing so would have been that current interruption changes the amount of power, which affects the temperature of the heating elements of the fixing unit (column 3, lines 7-9 and lines 15-18 of Yokoyama). Therefore, it would have been obvious to combine Yokoyama with Stephenson to obtain the invention as specified in claim 13.

10. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stephenson (US Patent 5,757,388) in view of Yokoyama (US Patent 5,694,226) and Kawai (US Patent 5,805,780).

Regarding claim 10: Stephenson discloses an image forming apparatus (figure 2 of Stephenson) that forms an image from a set of image data (column 5, lines 1-4 of Stephenson). Stephenson in view of Yokoyama does not disclose expressly that said image forming apparatus further comprises a fee-charging unit for charging a user a fee for forming an image. Kawai discloses an image forming apparatus (figure 1 of Kawai) that comprises a fee-charging unit (figure 1(8) and column 5, lines 62-65 of Kawai) for charging a user a fee for forming an image (column 5, line 62 to column 6, line 5 of Kawai). Stephenson in view of Yokoyama is combinable with Kawai because they are from the same field of endeavor, namely the printing of image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include an

automatic money handling device that collects payment for printing images. The motivation for doing so would have been to be able to automatically collect payment for the printing of an image by a customer (column 5, lines 62-65 of Kawai). Therefore, it would have been obvious to combine Kawai with Stephenson in view of Yokoyama to obtain the invention as specified in claim 10.

11. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stephenson (US Patent 5,757,388) in view of Yokoyama (US Patent 5,694,226) and in further view of *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965) and Yokoyama (US Patent 5,694,226).

Regarding claim 14: Stephenson discloses that the image forming apparatus (figure 2 of Stephenson) comprises a detecting unit (figure 3(26) of Stephenson) for detecting whether the external device has been connected to said image forming apparatus (column 2, lines 47-64 of Stephenson). Said active socket connection is connected to the active latch (figure 3(24) of Stephenson) of the printer (column 2, lines 54-58 of Stephenson). The latch driver (figure 3(26) of Stephenson) controls the connection and disconnection of the camera from the printer (column 2, lines 60-64 and column 4, lines 13-16 of Stephenson). Said latch driver is controlled by the printer electronics (figure 3(30) and column 4, lines 13-16 of Stephenson). Therefore, the latch driver (figure 3(26) of Stephenson), under control by aspects of the printer electronics (figure 2(30) of Stephenson) forms what is essentially the detecting unit.

Stephenson discloses that said image forming apparatus further comprises a judging unit (figure 3(26) of Stephenson) for judging whether an image forming operation has been completed (column 6, lines 8-16 of Stephenson). The latch driver (figure 3(26) of Stephenson), under the control of the printer electronics (figure 3(30) of Stephenson), also performs the function of the detecting unit, as discussed above.

Stephenson in view of Yokoyama does not expressly disclose that the judging unit is a separate unit from the detecting unit. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to include the functionality of the judging unit and the functionality of the detecting unit into one device since *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965) has held that it is an obvious design choice to make components integral if doing so does not create any useful and novel result. Said latch driver, under the control of said printer electronics, performs the functions of both the detecting unit and the judging unit as one integral unit.

Stephenson in view of Yokoyama and in further view of *In re Larson* does not disclose expressly that the control unit controls the switching unit so as to switch the fixing unit from the fixing mode to the standby mode when the external device detecting unit detects that the external device has been separated from the connector and when the judging unit judges that the image forming operation has been completed.

Yokoyama discloses a control unit (figure 1(12,13) of Yokoyama) for controlling the switching unit (figure 1(9) of Yokoyama) so as to switch said fixing unit from the fixing mode to the standby mode when the image signal is completed (column 3, lines

15-18 and lines 33-37 of Yokoyama). Yokoyama further discloses that said control unit controls said switching unit by controlling the level of electrical power provided based on a signal related to the time (column 3, lines 1-9 and lines 19-25 of Yokoyama). The signal indicating image completion is used in conjunction with the signal relating to the time to control the temperature of the fixing unit (column 3, lines 1-50 of Yokoyama).

Stephenson in view of Yokoyama and in further view of *In re Larson* is combinable with Yokoyama because they are from the same field of endeavor, namely printer and image forming control. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to switch said fixing unit from fixing mode to standby mode when said fixing unit is not actively needed. The signal indicating image completion, as taught in Yokoyama, is used in the control of the temperature in conjunction with the detection signal from the detecting unit, as taught by Stephenson, instead of the signal related to time, as taught by Yokoyama. Yokoyama teaches that the purpose for using the time signal is so that the image forming device will be on at a pre-heat temperature or off at room temperature (column 1, lines 50-59 of Yokoyama), depending upon the time the image forming device is most likely to be in use (column 2, lines 61-65; column 3, lines 19-25; and column 1, lines 24-26 of Yokoyama). The most likely time for image forming to occur in image forming apparatus taught by Stephenson is when the external device (figure 1 of Stephenson) is attached to the image forming apparatus (figure 2 of Stephenson). Therefore, it would have been obvious to use the detection signal from said detecting unit, rather than the time signals, in conjunction with the image completion signal for controlling when said fixing unit switches from the fixing

mode to the standby mode. The motivation for doing so would have been to conserve the power consumed by the printer (column 1, lines 20-24 of Yokoyama) by turning on the power to the fixing unit only when the external device is connected (column 2, lines 40-44 of Amoni). Therefore, it would have been obvious to combine Yokoyama with Stephenson in view of Yokoyama and in further view of *In re Larson* to obtain the invention as specified in claim 14.

12. Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stephenson (US Patent 5,757,388) in view of Amoni (US Patent 5,884,086) and Kawai (US Patent 5,805,780).

Regarding claim 15: Stephenson discloses an image forming apparatus (figure 2 of Stephenson). Said image forming apparatus comprises a printing unit (figure 4 and column 4, lines 61-64 of Stephenson).

Stephenson discloses that said image forming apparatus comprises an interface (figure 1(18,20,22) and figure 2(24,24a,28,32) of Stephenson) for connecting the external device (figure 1 of Stephenson) to said image forming apparatus (column 2, lines 50-64 and column 3, lines 25-32 of Stephenson). Image data is received from said external device via the interface (column 3, lines 33-40 of Stephenson). A printing unit (figure 4 of Stephenson) is used to form an image according to the image data from said external device that has been received via the interface (column 5, lines 1-7 of Stephenson).

Stephenson does not mention specifically that said image forming apparatus further comprises a power supplying unit for supplying power. However, said power supplying unit is inherent in the design of the device since, without power, it is impossible for said image forming apparatus to perform any meaningful operation.

Stephenson does not disclose expressly that said power supplying unit supplies power to an external device transmitting image data; and that the power is supplied to the external device via the interface.

Amoni discloses that power is supplied to an external device (column 2, lines 32-39 of Amoni). The power is supplied to said external device via the interface (column 2, lines 36-39 of Amoni).

Stephenson and Amoni are combinable because they are from the same field of endeavor, namely the transmission of electronic data between electronic devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use an enhanced USB connector (figure 7 and column 2, lines 36-39 of Amoni) for the transmission of both data and power between the external device (figure 1 of Stephenson) and the image forming device (figure 2 of Stephenson). The motivation for doing so would have been to provide both power and data transmission in an efficient manner that does not require separate electrical power connections for each device (column 1, lines 31-36 and column 2, lines 32-39 of Amoni). Therefore, it would have been obvious to combine Amoni with Stephenson to obtain the invention as specified in claim 15.

Stephenson in view of Amoni does not disclose expressly that said image forming apparatus further comprises a judging unit for judging whether a charge is to be collected; and a control unit for controlling power supplying by the power supplying unit and image forming by the printing unit according to a judging result from the judging unit.

Kawai discloses a judging unit for judging whether a charge is to be collected (column 5, lines 62-67 of Kawai). The money handling unit (figure 1(8) and column 5, lines 54-55 of Kawai) sends a start signal to the controller when the user has given the proper fee to said money handling unit. Therefore, said money handling unit performs the function of a judging unit for judging whether a charge is to be collected.

Kawai further discloses a controller (figure 1(7) of Kawai). Said controller controls the power supplying by the power supplying unit (figure 1(10) of Kawai) and image forming by the printing unit (figure 1(9) and column 5, lines 55-56 of Kawai) according to a judging result by the judging unit (column 5, lines 65-67 and column 6, lines 6-7 of Kawai). Since said power supplying unit operates to feed power to various components (column 6, lines 6-7 of Kawai), said power supplying unit is effectively controlled by the controller.

Stephenson in view of Amoni is combinable with Kawai because they are from the same field of endeavor, namely the control of image forming and printing apparatuses. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a unit to handle monetary transactions, said unit controlling the device that forms an image and the power supply that is needed to

deliver power to the necessary components required to form the image. The motivation for doing so would have been to be able to automatically collect payment for the printing of an image by a customer (column 5, lines 62-65 of Kawai). Therefore, it would have been obvious to combine Kawai with Stephenson in view of Amoni to obtain the invention as specified in claim 15.

Regarding claim 16: Stephenson discloses that the image forming apparatus comprises a printing unit (figure 4 and column 4, lines 61-64 of Stephenson).

Stephenson does not mention specifically that said image forming apparatus further comprises a power supplying unit for supplying power. However, said power supplying unit is inherent in the design of the device since, without power, it is impossible for said image forming apparatus to perform any meaningful operation.

Stephenson in view of Amoni does not disclose expressly that the control unit has the printing unit form the image and has the power supplying unit supply the power when the judging unit judges that the charge is to be collected.

Kawai discloses that the control unit (figure 1(7) of Kawai) has the printing unit (figure 1(9) and column 5, lines 55-56 of Kawai) form the image and has the power supplying unit (figure 1(10) of Kawai) supply the power when the judging unit (figure 1(8) and column 5, lines 54-55 of Kawai) judges that the charge is to be collected (column 5, lines 65-67; column 6, lines 6-7; and column 19, lines 4-7 and lines 23-26 of Kawai). When the start signal is given by the money handling unit (figure 1(8) and column 5, lines 54-55), the controller (figure 1(7) of Kawai) operates the printer (figure 1(9) and column 19, lines 23-26 of Kawai) for the purpose of printing out an image

based on received image data (column 19, lines 4-6 of Kawai). Said start signal also causes the controller (figure 1(7) of Kawai) to control said power supplying unit since said power supplying unit is required to feed power to the components that are necessary to form the image (column 6, lines 6-7 of Kawai).

Stephenson in view of Amoni is combinable with Kawai because they are from the same field of endeavor, namely the control of image forming and printing apparatuses. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a unit to handle monetary transactions, said unit controlling the device that forms an image and the power supply that is needed to deliver power to the necessary components required to form the image. The motivation for doing so would have been to be able to automatically collect payment for the printing of an image by a customer (column 5, lines 62-65 of Kawai). Therefore, it would have been obvious to combine Kawai with Stephenson in view of Amoni to obtain the invention as specified in claim 16.

13. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stephenson (US Patent 5,757,388) in view of Amoni (US Patent 5,884,086), Kawai (US Patent 5,805,780), and Meese (US Patent 4,532,418) and in further view of *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965).

Regarding claim 17: Stephenson discloses forming images with the printing unit (figure 4 and column 5, lines 1-4 of Stephenson). Stephenson does not disclose

expressly supplying power. However, this is inherent since any meaningful operation would otherwise be impossible.

Stephenson in view of Amoni does not disclose expressly a charge collecting unit for collecting a charge for the image forming and a charge for an amount of the power that has been supplied to the external device.

Kawai discloses a money handling unit (figure 1(8) and column 5, lines 54-55 of Kawai) that performs the functions of a charge collecting unit by collecting a charge for the operation of the image forming apparatus (column 5, line 62 to column 6, line 7; and column 7, lines 27-29 of Kawai). The operation of the apparatus includes both forming the image (column 5, line 62 to column 6, line 5; and column 7, lines 27-29 of Kawai) and supplying the power to operate the necessary components (column 6, lines 6-7 of Kawai). Furthermore, the money handling unit (figure 1(8) and column 5, lines 54-55 of Kawai) performs the function of a judging unit for judging whether a charge is to be collected. Said money handling unit sends a start signal to the controller (figure 1(7) of Kawai) when the user has given the proper fee to said money handling unit (column 5, lines 62-65 of Kawai).

Stephenson in view of Amoni is combinable with Kawai because they are from the same field of endeavor, namely the control of image forming and printing apparatuses. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include in a unit the functions necessary to collect monetary charges for both the formation of an image and the power needed to form said image. The motivation for doing so would have been to be able to automatically collect

payment for the printing of an image by a customer (column 5, lines 62-65 of Kawai). Therefore, it would have been obvious to combine Kawai with Stephenson in view of Amoni.

Stephenson in view of Amonia and Kawai does not disclose expressly that the charge collecting unit also collects a charge for an amount of the power that has been supplied to the external device. Meese discloses collecting a charge for an amount of power (column 1, lines 39-42 of Meese). Said amount of power is provided to an external device (column 1, lines 44-47 of Meese). Stephenson in view of Amonia and Kawai is combinable with Meese because they are from similar problem solving areas, namely the automated collecting of payments for the provision of services. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to additionally charge for the amount of electrical power that is supplied to the external device (figure 1 of Stephenson). The motivation for doing so would have been to facilitate the easy collection of payments for the service of providing the electricity that an external device requires for operation (column 1, lines 39-42 of Meese). Therefore, it would have been obvious to combine Meese with Stephenson in view of Amonia and Kawai to obtain the charge collecting unit.

Stephenson in view of Amonia, Kawai and Meese does not expressly disclose that the charge collecting unit and the judging unit are separate units. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the charge collecting unit and the judging unit into one integrated unit since *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965) has held that it is an

obvious design choice to make components integral if doing so does not create any useful and novel result. Therefore, it would have been obvious to combine the charge collecting unit and the judging unit into one integrated unit, and thus obtain the invention as disclosed in claim 17.

14. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stephenson (US Patent 5,757,388) in view of Amoni (US Patent 5,884,086) and Kawai (US Patent 5,805,780) and in further view of *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965).

Regarding claim 18: Stephenson discloses an image forming apparatus (figure 2 of Stephenson). Said image forming apparatus comprises a printing unit (figure 4 and column 4, lines 61-64 of Stephenson).

Stephenson in view of Amoni does not disclose expressly that said image forming apparatus further comprises a handling unit into which money is input, the handling unit accumulating the input money, wherein the judging unit judges that the charge is to be collected when money has been input into the handling unit.

Kawai discloses a money handling machine (figure 1(8); column 5, lines 54-55 of Kawai). Money of some form is input into said money handling machine (column 5, lines 62-65 of Kawai). Said money handling machine collects the proper fee for the operation of the overall apparatus taught by Kawai (column 5, lines 62-63 of Kawai). While the proper fee is being collected in the money handling machine, the money handling unit (figure 1(8) and column 5, lines 54-55 of Kawai) performs the function of a

judging unit for judging whether a charge is to be collected. Said money handling unit sends a start signal to the controller (figure 1(7) of Kawai) when the user has completed inserting the proper fee, thus starting the operation of aspects of the overall apparatus taught by Kawai (column 5, lines 62-67 of Kawai).

Stephenson in view of Amoni is combinable with Kawai because they are from the same field of endeavor, namely the control of image forming and printing apparatuses. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include in a unit the functions necessary to collect monetary charges for the overall operations needed to form an image and to send a signal that the proper charges have been collected. The motivation for doing so would have been to be able to automatically collect payment for the printing of an image by a customer (column 5, lines 62-65 of Kawai). Therefore, it would have been obvious to combine Kawai with Stephenson in view of Amoni.

Stephenson in view of Amoni and Kawai does not expressly disclose that the handling unit and the judging unit are separate units. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the handling unit and the judging unit into one integrated unit since *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965) has held that it is an obvious design choice to make components integral if doing so does not create any useful and novel result. Therefore, it would have been obvious to combine the handling unit and the judging unit into one integrated unit and thus obtain the invention as specified in claim 18.

15. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stephenson (US Patent 5,757,388) in view of Amoni (US Patent 5,884,086), Kawai (US Patent 5,805,780), and Meese (US Patent 4,532,418) and in further view of *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965).

Regarding claim 19: Stephenson discloses forming images with the printing unit (figure 4 and column 5, lines 1-4 of Stephenson). Stephenson does not disclose expressly supplying power. However, this is inherent since any meaningful operation would otherwise be impossible.

Stephenson in view of Amoni does not disclose expressly a handling unit which includes first and second handling units; and a control unit that permits the image forming when money has been input into the first handling unit and permits the power supplying when money has been input into the second handling unit.

Kawai discloses a money handling machine (figure 1(8); column 5, lines 54-55 of Kawai). Money of some form is input into said money handling machine (column 5, lines 62-65 of Kawai). Said money handling machine collects the proper fee for the operation of the overall apparatus taught by Kawai (column 5, lines 62-63 of Kawai). While the proper fee is being collected in the money handling machine, the money handling unit (figure 1(8) and column 5, lines 54-55 of Kawai) performs the function of a judging unit for judging whether a charge is to be collected. Said money handling unit sends a start signal to the controller (figure 1(7) of Kawai) when the user has completed inserting the proper fee, thus starting the operation of aspects of the overall apparatus taught by Kawai (column 5, lines 62-67 of Kawai).

Kawai discloses a control unit (figure 1(7) of Kawai) that permits the forming of an image when the appropriate fee has been paid (column 5, line 62 to column 6, line 7 of Kawai) to a handling unit (figure 1(8) of Kawai) that handles the money (column 5, lines 62-65 of Kawai), and is therefore referred to in Kawai as a money handling unit (column 5, lines 54-55 of Kawai).

Stephenson in view of Amoni is combinable with Kawai because they are from the same field of endeavor, namely the control of image forming and printing apparatuses. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include in a unit the functions necessary to collect monetary charges for both the formation of an image. The motivation for doing so would have been to be able to automatically collect payment for the printing of an image by a customer (column 5, lines 62-65 of Kawai). Therefore, it would have been obvious to combine Kawai with Stephenson in view of Amoni.

Stephenson in view of Amoni and Kawai does not disclose expressly a second handling unit that handles money input for the purpose of purchasing electrical power. Kawai does not disclose expressly that the controlling unit permits power supplying when money has been put into said second handling unit.

Meese discloses a handling unit that collects payment for the supplying of electrical power (column 1, lines 39-43 of Meese). Stephenson in view of Amoni and Kawai is combinable with Meese because they are from similar problem solving areas, namely the automated collecting of payments for providing services. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a

handling unit for handling money so that the additional charge for the amount of electrical power that is supplied to the external device (figure 1 of Stephenson) can be collected; and have said control unit allow the purchasing of electrical power, if there is sufficient money paid to the second handling unit. The motivation for doing so would have been to facilitate the easy collection of payments for the service of providing the electricity that an external device requires for operation (column 1, lines 39-42 of Meese). Therefore, it would have been obvious to combine Meese with Stephenson in view of Amoni and Kawai to include a second handling unit in the handling unit for the purpose of collecting money for charging an external device and have said control unit permit the supplying of electrical power if there is sufficient money paid to said second handling unit.

Stephenson in view of Amoni, Kawai and Meese does not expressly disclose that the handling unit and the judging unit are separate units. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the handling unit and the judging unit into one integrated unit since *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965) has held that it is an obvious design choice to make components integral if doing so does not create any useful and novel result. Therefore, it would have been obvious to combine the handling unit and the judging unit into one integrated unit and thus obtain the invention as specified in claim 19.

16. Claims 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stephenson (US Patent 5,757,388) in view of Amoni (US Patent 5,884,086), Kawai (US Patent 5,805,780), and Meese (US Patent 4,532,418).

Regarding claim 20: Stephenson does not mention specifically a power supply apparatus. However, some form of power supplying apparatus is inherent in the design of the device since both the camera (figure 1 of Stephenson) and the printer (figure 2 of Stephenson) require power. Otherwise, it is impossible for the camera or the printer to perform any meaningful operation.

Stephenson further discloses an external device (figure 1 of Stephenson) that transmits image data (column 3, lines 33-40 of Stephenson).

Stephenson further discloses a printing unit (figure 4 of Stephenson) for forming an image according to the image data from said external device (column 4, line 61 to column 5, line 4 of Stephenson) that has been received via the connector (figure 3(20) and column 2, lines 40-49 of Stephenson). The active socket (figure 3(20) of Stephenson) acts as a connector by transmitting data from the connected camera (figure 1 of Stephenson) to the image forming apparatus (figure 2 of Stephenson).

Stephenson does not disclose expressly that said power supply apparatus supplies power to the external device; and that said power supply apparatus comprises a power supplying unit for generating the power that is to be supplied to the external device.

Stephenson does not disclose expressly that said power supply apparatus further comprises a connector for connecting the external device to the power supply

apparatus, wherein the image data from the external device is received via said connector and the power from the power supplying unit is supplied to the external device via said connector.

Amoni discloses that power is supplied to an external device (column 2, lines 32-39 of Amoni). The power is supplied to said external device via the interface (column 2, lines 36-39 of Amoni). A power supply unit is used to supply said power (figure 2(201); column 3, line 66 to column 4, line 11; and column 4, lines 51-54 of Amoni). The image data is received from said external device and power is supplied to said external device via said connector (column 2, lines 36-39 of Amoni).

Stephenson and Amoni are combinable because they are from the same field of endeavor, namely the transmission of electronic data between electronic devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use an enhanced USB connector (figure 7 and column 2, lines 36-39 of Amoni) for the transmission of both data and power between the external device (figure 1 of Stephenson) and the image forming device (figure 2 of Stephenson). The motivation for doing so would have been to provide both power and data transmission in an efficient manner that does not require separate electrical power connections for each device (column 1, lines 31-36 and column 2, lines 32-39 of Amoni). Therefore, it would have been obvious to combine Amoni with Stephenson.

Stephenson in view of Amoni does not disclose expressly that said power supply apparatus further comprises a charge collecting unit for collecting a charge for an amount of the power that has been supplied to the external device.

Kawai discloses a money handling unit (figure 1(8) and column 5, lines 54-55 of Kawai). Said money handling unit performs the same essential function as the charge collecting unit in that said money handling unit collects a charge for the operation of an image forming device (column 5, line 62 to column 6, line 7 of Kawai).

Stephenson in view of Amoni is combinable with Kawai because they are from the same field of endeavor, namely the control of image forming and printing apparatuses. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a unit to handle monetary transactions, said unit controlling the device that forms an image and the power supply that is needed to deliver power to the necessary components required to form the image. The motivation for doing so would have been to be able to automatically collect payment for the printing of an image by a customer (column 5, lines 62-65 of Kawai). Therefore, it would have been obvious to combine Kawai with Stephenson in view of Amoni.

Stephenson in view of Amoni and Kawai does not disclose expressly that the charge collected by said charge collecting unit is a charge for power that has been supplied to the external device.

Meese discloses a unit that collects a charge for an amount of power that has been supplied to an external device (column 1, lines 39-43 of Meese). Meese teaches that an external device, such as an electric car, is provided with power in exchange for the payment of a charge via a device (column 1, lines 39-43 of Meese).

Stephenson in view of Amoni and Kawai is combinable with Meese because they are from the same field of endeavor, namely the control and supply of external devices.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the charge handling unit for the purpose of charging for the power supplied to the external device. The motivation for doing so would have been to be able to automatically collect payment for the amount of electricity that the customer requires to recharge the external device that is owned by said customer (column 1, lines 39-43 of Meese). Therefore, it would have been obvious to combine Meese with Stephenson in view of Amoni and Kawai to obtain the invention as specified in claim 20.

Regarding claim 21: Stephenson discloses a printing unit (figure 4 of Stephenson) for receiving image data from the external device (figure 1 of Stephenson) and forming an image (column 3, lines 41-48 of Stephenson). Stephenson further discloses a step for detecting whether said external device has been connected to the image forming apparatus (figure 2 and column 4, lines 13-21 of Stephenson), which is supplied power by a power supplying apparatus. The fact that said image forming apparatus is supplied power by a power supplying apparatus is inherent since, without some form of power supplying apparatus to supply power, it would be impossible for the image forming apparatus to perform any meaningful function. Stephenson further discloses a step in which said printing unit forms an image (column 3, lines 41-48 of Stephenson).

Stephenson discloses an image forming step where the printing unit forms an image (column 3, lines 25-32 of Stephenson) when a judging step has judged that the image is to be formed (column 2, lines 45-49 of Stephenson), said image being formed according to the image data (column 3, lines 33-36 of Stephenson). When the camera

is connected to the printer and said connection is detected and transmitted (column 2, lines 45-49 of Stephenson) and the image data is transmitted (column 3, lines 21-25 of Stephenson), it is the printer electronics performs the control functions necessary to form the image (column 3, lines 28-32 of Stephenson).

Stephenson does not disclose expressly a method of supplying power for a power supply apparatus to which an external device is to be connected, the power supply apparatus supplying power to the external device.

Stephenson does not disclose expressly that the power supplying method comprises a connection detecting step for detecting whether the external device has been connected to the power supply apparatus.

Stephenson does not disclose expressly that the power supplying method further comprises a judging step for judging one of that the power is to be supplied to the external device which has been connected to the power supply apparatus and that the image is to be formed according to the image data from the external device.

Stephenson does not disclose expressly that the power supplying method further comprises a power supplying step for supplying the power to the external device when the judging step has judged that the power is to be supplied to the external device.

Amoni discloses that a power supply apparatus (figure 2(201) of Amoni) supplies power to an external device via a connector (figure 7; column 2, lines 36-39; and column 4, lines 51-60 of Amoni). The step of supplying power to the external device occurs after a connection step has detected that said connector is connected to the device. Power requirements are sent to the power supply from the external device

(column 2, lines 40-44 of Amoni). The transmission of this data would inherently verify the fact that the external device is connected. Furthermore, since the power supply supplies power to the entire device by supplying all needed voltages (column 4, lines 51-54 of Amoni), said power supply would necessarily be connected to the connector. When the switches and electronics have judged that the external device is connected and requires power, said power supply unit then supplies the needed power (column 2, lines 40-44 of Amoni).

Stephenson and Amoni are combinable because they are from the same field of endeavor, namely the transmission of electronic data between electronic devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use an enhanced USB connector (figure 7 and column 2, lines 36-39 of Amoni) for the transmission of power between the external device (figure 1 of Stephenson) and the power supply. The motivation for doing so would have been to provide the required power transmission in an efficient manner that does not require separate electrical power connections for each device (column 1, lines 31-36 and column 2, lines 32-39 of Amoni). Therefore, it would have been obvious to combine Amoni with Stephenson.

Stephenson in view of Amoni does not disclose expressly that the power supplying method further comprises a charge collecting step for collecting a charge for an amount of the power that has been supplied by the power supply apparatus and a charge for image forming by the printing unit.

Kawai discloses a collecting a charge for the operation of an image forming device (column 5, line 62 to column 6, line 7 of Kawai). Stephenson in view of Amoni is

combinable with Kawai because they are from the same field of endeavor, namely the control of image forming and printing apparatuses. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a unit to handle monetary transactions, said unit controlling the device that forms an image and the power supply that is needed to deliver power to the necessary components required to form the image. The motivation for doing so would have been to be able to automatically collect payment for the printing of an image by a customer (column 5, lines 62-65 of Kawai). Therefore, it would have been obvious to combine Kawai with Stephenson in view of Amoni.

Stephenson in view of Amoni and Kawai does not disclose expressly that the charge collected is a charge for power that has been supplied to the external device.

Meese discloses collecting a charge for an amount of power that has been supplied to an external device (column 1, lines 39-43 of Meese). Meese teaches that an external device, such as an electric car, is provided with power in exchange for the payment of a charge via a device (column 1, lines 39-43 of Meese).

Stephenson in view of Amoni and Kawai is combinable with Meese because they are from the same field of endeavor, namely the control and supply of external devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the charge handling unit for the purpose of charging for the power supplied to the external device. The motivation for doing so would have been to be able to automatically collect payment for the amount of electricity that the customer requires to recharge the external device that is owned by said customer (column 1, lines 39-43 of

Meese). Therefore, it would have been obvious to combine Meese with Stephenson in view of Amoni and Kawai to obtain the invention as specified in claim 21.

Regarding claim 22: Stephenson discloses the step of forming images with the printing unit (column 4, line 61 to column 5, line 4 of Stephenson). Stephenson does not disclose expressly a step for supplying power. However, this step is inherent since any meaningful operation would otherwise be impossible.

Stephenson in view of Amoni does not disclose expressly that it is judged that money has been put for one of power supplying and image forming at the judging step.

Kawai further discloses that it is judged that money has been put for image forming at the judging step (column 5, line 62 to column 6, line 7 of Kawai). Stephenson in view of Amoni is combinable with Kawai because they are from the same field of endeavor, namely the control of image forming and printing apparatuses. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to judge whether or not money had been put for image forming. The motivation for doing so would have been to determine whether or not the proper fee had been collected for the image forming operation from a customer (column 5, lines 62-65 of Kawai). Therefore, it would have been obvious to combine Kawai with Stephenson in view of Amoni.

Stephenson in view of Amoni and Kawai does not disclose expressly that it is judged that money has been put for power supplying at the judging step.

Meese discloses that it is judged that money has been put for power supplying (column 1, lines 44-47 of Meese). Stephenson in view of Amoni and Kawai is combinable with Meese because they are from the same field of endeavor, namely the

control and supply of external devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to judge whether or not money had been put for image forming. The motivation for doing so would have been to determine whether or not the proper fee had been collected for the supplied power from a customer (column 1, lines 44-47 of Meese). Therefore, it would have been obvious to combine Meese with Stephenson in view of Amoni and Kawai to obtain the invention as specified in claim 22.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hiromichi Takikita, US Patent 5,708,821, January 13, 1998.

Maeda et al., US Patent 5,493,409, February 20, 1996.

Nobuyuki Hirai, US Patent 5,349,448, September 20, 1994.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A Thompson whose telephone number is 703-305-6329. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K Moore can be reached on 703-308-7452. The fax phone number for the organization where this application or proceeding is assigned is 703-308-5397.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3500.

James A. Thompson
Examiner
Art Unit 2624

JAT
December 22, 2003



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